

product profiles

Issue #32

The free newspaper for Pick™ operating system users.

February 11, 1987

This month's mailbag

Knowing when to input

In *Product Profiles* #15, you expressed concern that even the availability of the `SYSTEM(14)` function prevents you from knowing if a carriage return has been typed, which means `INPUT var` still can't be used instead of executing `INPUT var, 1` over and over. A simple solution to avoid hanging while inputting more than one character is to use `INPUT var, SYSTEM(14)`. That

will input the number of characters in the buffer without need for a carriage return.

Jim Taylor
Orem, UT

Although `INPUT var, SYSTEM(14)` will return everything waiting in the input buffer, you still can't tell if the user is actually done typing.

We originally thought carriage return detection would be a nice way to avoid having to collect input byte-by-byte in certain cases. For example, let's say we're writing code that waits up to

30 seconds for the user to type a text string delimited by a carriage return. If there were a function, say `SYSTEM(99)`, that was true if a carriage return is somewhere in the input buffer, then we could write:

```
GOT.INPUT = 0
WAIT.START = TIME()
LOOP
  IF SYSTEM(99) THEN
    INPUT TEXT
    GOT.INPUT = 1
  END
  UNTIL GOT.INPUT OR
    ((TIME() - WAIT.START) > 30) DO
    REPEAT
```

Actually, the same thing can be accomplished using `SYSTEM(14)` without that much difficulty. For example:

```
TEXT = ""
RET = CHAR(13)
WAIT.START = TIME()
LOOP
  IF SYSTEM(14) > 0 THEN
    INPUT BYTE, 1:
    ELSE BYTE = ""
  UNTIL (BYTE=RET) OR
    ((TIME() - WAIT.START) > 30) DO
    TEXT = TEXT : BYTE
  REPEAT
```

The real problem with all

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of the above code is that a tremendous amount of CPU time is wasted while the program just loops waiting for input, which quickly bogs down other ports. As we've reported in the past, we were surprised how overall system throughput was even worse when we inserted RQM statements in the LOOPS. On our Zebras, it turns out RQM compiles to SLEEP statements that cause disk I/O. The correct way to force a "real" quantum release is to use the SYSTEM(13) function! But wouldn't it be nice just to be able to write something like INPUT TEXT WAIT 30?

We also don't like the proliferation of magic numbers for the SYSTEM function. Pick BASIC would read easier if it used more function names, instead of just allowing more numeric arguments in SYSTEM calls. Wouldn't you rather see code that said WIDTH(), LINES(), STON() and PORT() instead of SYSTEM(2), SYSTEM(4), SYSTEM(10) and SYSTEM(18)?

- Editors

More on

speeding up code
Following on your "Coding for speed" article in Product Profiles #21, I timed MATREAD, READ, READV,

and OCONV(Tfile). The implicit OPEN and READV in an OCONV seems appalling from a systems design and documentation point of view, but the timings were so favorable I can no longer ignore the capability, particularly for densely integrated systems in which one is retrieving bits and pieces from 8 to 12 files.

Hands down, my results favored the READV, then the READ, but the MATREAD and OCONV ended in a near dead heat. With the allowance for OPENing for reading, which one does not do for the OCONV, it is very surprising the MATREAD performed so poorly.

I am a bit embarrassed to conclude that the seemingly least efficient and least recommended technique performed no worse than the seemingly most efficient technique. I would like to hear if those folks responsible for the folklore you quoted were merely assuming that MATREAD would be preferred on the basis of non-Pick experience, or whether new releases on new machines have just not been explored.

Archie M. Andrews
Alexandria, VA

As we described in that article, a MATREAD is better than a READ if you subsequently manipulate a lot

of attributes to make up for the slower MATREAD, since accessing an attribute from a dimensioned array is faster than accessing an attribute from an undimensioned dynamic array. A READ X followed almost immediately by a WRITE X might as well be left alone. But a READ X followed by a few thousand executions of $Y = X(I)$ should be changed to a DIM, a MATREAD, and $Y = X(I)$ if you want to see a speed increase.

- Editors

Pick doesn't like our analysis

I have had the opportunity to recently review the September 30th issue of Product Profiles and your self-interview. I found some of the views expressed therein to be somewhat misleading as to the makeup and size of the Pick marketplace.

In your comparison of Macintosh vs. Pick circulation for your periodicals, you fail to take into consideration that Pick and Apple address different markets. The former is in the real world business environment and thus not always interested in techie info. The latter appeals to techie types in specialized markets.

Just because you cannot identify every Pick user doesn't mean that they are not

there. These users are businesses who utilize the Pick operating system for a definite purpose and not as a technical toy. Over 90% of the users could care less about the internals of the operating system. What they require is that the system and the application provide them with the tools that help manage their businesses. You yourself identified this fact in your interview. The typical end-user is the owner or manager responsible for the data processing needs of his or her company. The days of Pick being a techie cult are long since past. You have failed to recognize this change in your assessment of the Pick market. Also, you are trying to stereotype the user as a DOS techie. He is in fact a businessperson.

The Pick operating system for the most part is basically the same for all hardware. Product differentiation is not new to any market. An application is still portable to all Pick hardware. The Standards Committee is working to insure that portability remains, and the Pick licensee organization is committed to standards.

Comparing the Pick operating system with Apple's operating system is unfair. Pick is a much more sophisticated operating system. All licensees release periodic updates. Pick Systems itself is readying the next major release of the Pick System, Open Architecture. We are confident that this new version of Pick will gain widespread market acceptance. The initial release will be followed by periodic releases as new features are added. An operating system is not something you throw together and say here it is. The amount of resources in both dollars and personnel is enormous. Analysis of market demand and end-user input is critical to development. The complexities involved in incorporating new features require time consuming effort in both implementation and testing.

Pick licensees do know who purchases their product since they are required to submit license agreements. They in turn treat these confidentially as does Pick Systems. The listings are not released for solicitation purposes to anyone. Because you cannot gain access to a genuine data base, it is unfair

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to blame the dealers, licensees, or Pick Systems.

In conclusion I will only say that the Pick market passed you by. While you were trying to fit the Pick user into your mold of a "typical micro user" who has hours to play in DOS, he went the route of managing his business where results count. Pick is a business solution, not a programmer's toy. The markets are totally different.

Don't lose heart. There are thousands of Apple users who would undoubtedly pay for a hackers newsletter. You have identified this market niche and can fulfill a demand. But don't confuse all markets as identical.

Frank Petyak
Worldwide Sales Director
Pick Systems

We disagree with much of your letter. Here are our arguments, our paragraphs for your paragraphs.

First of all, Semaphore knows quite well that Pick and Apple don't compete in the same market. However, Pick and Apple do both compete for Semaphore's attention, because we publish periodicals and software products in both markets. In that respect, Pick has not done well. As we reported, Pick impresses us as a relatively stagnant, fragmented market with comparatively slow growth. We just see it as a simple fact that the more a software house like ourselves becomes involved with non-Pick markets, the more Pick looks unattractive. You're also overly concerned and somewhat misled about the role of "techies". Don't underestimate the need for technical information among Pick users. Even the most canned, turnkey installations need and want information about modulos, correlatives, and such, in order to effectively use their Pick machines. And don't overestimate the techies and hackers in the Apple market. Our own tracking of subscribers to our Macintosh newspaper

reveals that almost exactly half of our readers are using their Macs for business applications. You would be surprised at the number of Pick sites that also use Apple machines. We've also never found it necessary to publish any code or technical articles for Mac users. Our Apple publication tends to stay on a much higher level of discussion than our Pick publication.

Sure there are more users out

there than can be identified, but what good is that? Vendors can't sell to users they can't find. No matter what Pick's real growth is, if there isn't an economical way to find the users, we don't care if there are a hundred or a million. What difference does it make what the numbers are, if no one can reach them? As for how we "stereotype" users, we find four classes of people at Pick sites: (1) data processing

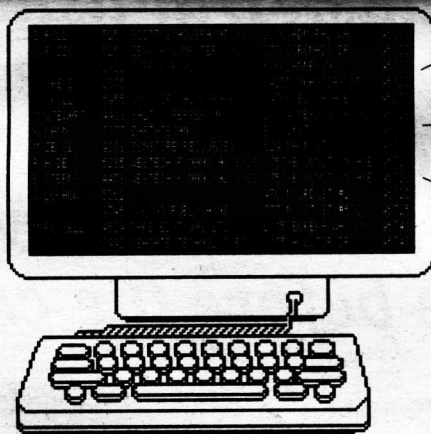
managers, (2) programmers, (3) hands-on terminal users, and (4) vice presidents, department heads, and other managers and employees who depend on the first three groups, but don't really care what hardware and software they use to produce results. While the first two groups are usually the people most interested in developments in the Pick market, we're comfortable with the fact that

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Ask us for a free copy of Product Profiles #24, describing how B-TREE-P was originally developed and put to work. As one of Semaphore's programmers says: "We often ask ourselves why we waited so long to create B-TREE-P. After using it for our own production work, we wonder how we ever got by before without it. A Pick computer without B-TREE-P is like a car without wheels".

B-TREE-P is a proven collection of BASIC subprograms for using B-trees on Pick computer systems. B-trees allow any of the data in any of your Pick files to be instantly located and displayed in any sort order, without having to wait for SORT or SELECT commands.

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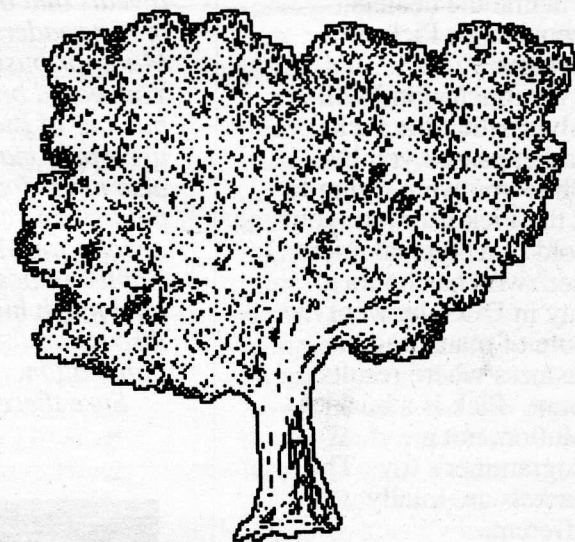
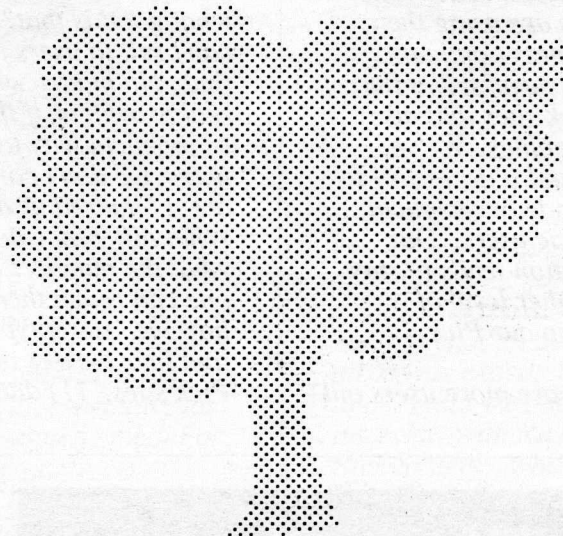
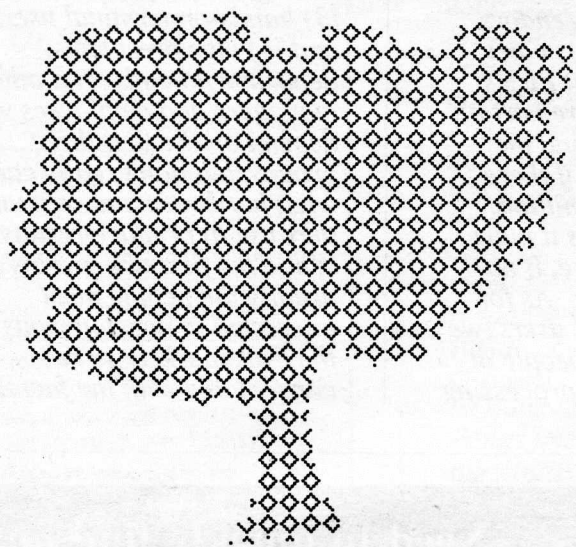
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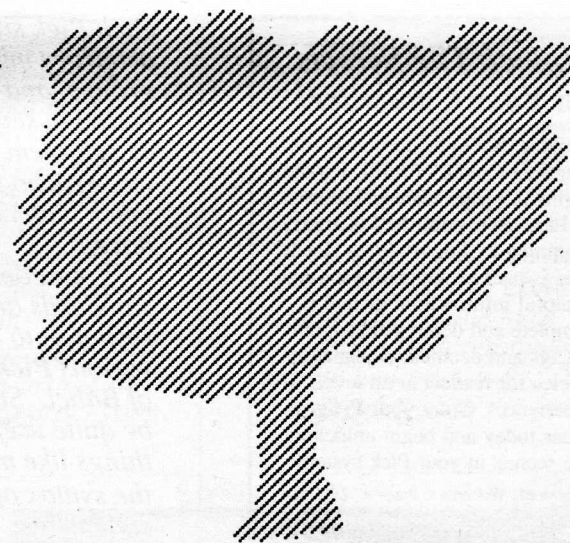
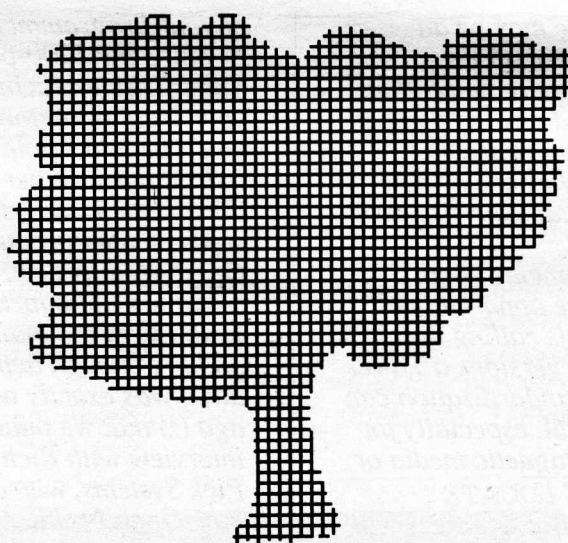
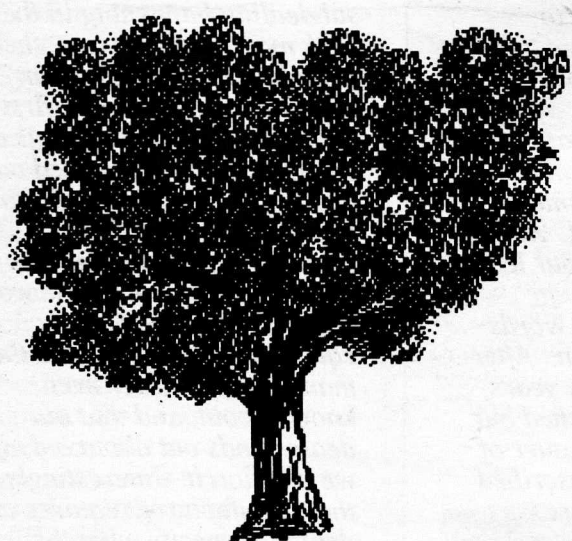


ONCE UPON A TIME, there lived a Pick™ computer user named Mike.

Every workday, from eight to five, Mike would sit in front of a terminal and type commands to make his computer produce reports. Sometimes the commands worked quickly and would make Mike's computer instantly display results. But usually Mike had to type a command that began with the dreaded words SORT or SELECT. Then the computer would take forever to process the command, and Mike would have to wait a long time before the computer could display the report.

Fortunately, Mike could stay busy while waiting for a SORT, because that's when he would always get lots of phone calls from his coworkers, who wanted to know why the displays on their terminals were suddenly slowing down to a crawl.

As each day passed, Mike got more and more bored with his slow computer.



One day, something terrible happened. Mike had just finished waiting ninety minutes for a complicated SORT, and was paging through the report on his terminal. Suddenly, Mike accidentally hit the Return key, and page four of the report flashed by before he could read it. Mike would have to do the whole SORT over again just to see page four. Mike almost had a nervous breakdown.

Fortunately, Mike pulled himself together. But Mike was mad. He just wasn't going to put up with those slow SORTs and SELECTs anymore. So Mike bought B-TREE-P.

Now Mike is very happy. He doesn't have to wait for his computer to SORT anymore. Mike can instantly find and display any data he's looking for. Even scroll forward and backward through his files. And his coworkers no longer call him, because the computer isn't sluggish anymore.

*The moral of this story? Buy B-TREE-P.
You'll be as happy as Mike.*

Unlock The Secrets In Your Computer!

Pragma (not to be confused with *Pragma's Product Profiles*) is the original 48-page technical journal for Pick users published quarterly beginning in August 1982. Each issue is packed with software and helpful information, including complete and debugged program listings and detailed, explanatory articles for readers at all levels of experience. Order your **Pragma** issues today and begin unlocking the secrets in your Pick system!

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each Pick site may be an arbitrary mix of all the groups, and we're more than happy to send anyone a paper or sell them software no matter who they are or how much technical expertise they have.

Your comments about standards are apparently in response to us calling the various Pick versions a Tower of Babel. Standardization can be quite useful, especially for things like magnetic media or the syntax of LOCATE statements. But licensees will probably always try to offer extra bells and whistles, as they already currently do, and treat any standard that might exist as a subset of what they want to offer the customer. We predict that good, easy "portability" will always be just out of reach, as it is now. We think Ultimate, ADDS, VMark, Cosmos, Prime, McDonnell Douglas and all the rest of the implementations will always vary enough from one another to continue the Tower of Babel tradition.

Yes, comparing Pick and Apple's (various) operating systems is unfair. That's why we didn't make any such comparison. However, you claim Pick is a much more sophisticated system. We disagree, both as users and as programmers. We think the Macintosh user interface makes Pick look archaic. As for system internals, ask one

of your programmers to examine the 1200-page tome titled "Inside Macintosh" at your local bookstore. We bet you'll be told Apple has indeed put together (and documented) an extremely sophisticated product. As for Open Architecture, your letter continues an unfortunate tradition of too many words and not enough action. After all, it was exactly two years ago (!) that we published our interview with Rich Lauer of Pick Systems, who described how Open Architecture was being released to licensees the following month, that it was reasonable to assume licensee versions would "make its way to the streets sometime before the end" of 1985, and that it would "be more in the June/July [1985] timeframe before you see it on the IBM XT" from Pick Systems. We're still waiting. Instead of vast rewrites and long delays, we would be happy with a steady, ongoing effort that produces just one or two occasional, but frequent and useful, enhancements.

We did not, as you imply, blame dealers, licensees, or Pick for our inability to find out who a substantial number of Pick users are. We simply reported that phenomenon as an obstacle making it difficult for third party houses like ourselves to be attracted to the market. We also think you're overlooking the amount of

subdealing happening in the Pick market. Years ago, the manufacturer's sales order and packing slip for the first machine we ever bought as a subdealer only mentioned our dealer, not us, as the sold-to and ship-to point. Nowadays, we are listed on the paperwork, but of course we resell and install the equipment at another site the manufacturer never even knows about, and that our dealer finds out about only if we mention it. Interestingly, the manufacturer requires our dealer to specify what the service organization is expected to be. That service group is then automatically notified of the sale!

Any computer system with a large enough following can support a technical journal. As we described in the interview, it was back in 1984 that it became obvious Pick just didn't have the substantial, cohesive market that was necessary for Pragma to continue in that vein, so Product Profiles was born. Although we've also published for Apple users since 1983, that periodical never has or will be a "hackers newsletter."

No, we don't feel that Pick is passing us by, or that we're confusing the Pick market with our other activities. Rather, we feel that unless Pick and its market develops the way it should, we're being

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forced to pass by Pick. As we stated in our interview, for now "we like the Pick system, we sell products and services based on it, and we use it within our own company. It's our system of choice for timesharing applications, because we find it efficient and easy to program". As long as that's true, we plan to continue to publish and sell to Pick users.
- Editors

CALLs vs. GOSUBs
In *Product Profiles #31*, you mention replacing CALLs with GOSUBs to speed up programs. You cite CALLs as being as much as ten times slower than GOSUBs. My own benchmarking on various Pick computers indicates CALL statements are roughly three times slower than GOSUB statements.
I find that the largest

obstacle I have to tuning systems for speed is finding out what the systems are doing. Much of the code I work on is so convoluted that it is difficult to figure out what the code is doing, much less make it faster.

Brian Gulino
Encinitas, CA

The worst CALL overhead we measured was on a tiny 128K machine. One of our

subscribers to *BTP/Branches*, a newsletter for our B-TREE-P customers, claims no discernible difference between GOSUB and CALL performance on her Sequel. You'll like the "statement profiler" we're working on for a future issue. It's a tool for identifying where a program spends its time, to make it easy to zero in on the code worth optimizing.
- Editors

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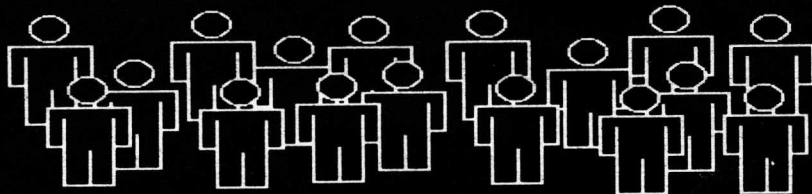
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Dear Pick™ user,

These fifty companies* use a Pick computer just like you do, but their computer can do some special things that your computer can't:

Long Beach Community Services • Halprin Supply Co. • Casualty Underwriters Inc. • University of California • Distributed Logic Corp. • Jet Electronics & Technology Inc. • National Center for Atmospheric Research • Trudell Trailer Sales Inc. • Stewart Co. • Computyme • Data Operating Systems Inc. • Tel-A-Train Inc. • Information Technology Consultants • Life & Health Insurance Co. of America • Flynt Systems Corp. • System Works Inc. • Miami Trading Enterprises • Generation Research • Multisystems Inc. • Infocel • Cooke Data Systems Inc. • John Klein & Assoc. Inc. • Condominium Insurance • Penn Independent Assoc. Inc. • Mark Card • Chandler Lumber Co. • Eye Care & Surgery Center • Chicago Kenworth • Wofford College • Conston Inc. • Assertive Systems • Office Works • Cornell University • City of Irvine • Excalibur Computer Systems Inc. • ADDS Inc. • Specs Music • Specialty Underwriters Inc. • Shoob Photography • May Trucking • Sierra Software Inc. • Medical Accounting Systems • AIPAC • NORPAC • Martin Cadillac Co. Inc. • Capital Software Ltd. • Oman Publishing • Reinsurance Assoc. • Hubert Distributing Co.

Their Pick computers can scroll through files, forward *or* backward, an item at a time or a page at a time, in *any* sort order. They don't have to wait for SORTs or SELECTs. They can immediately find any record in any file just by typing one or more starting characters that match *any* field in the record.

Why are these companies special? Because they purchased B-TREE-P, software for using B-trees on Pick computers. B-trees allow any of the data in any of your Pick files to be instantly located, displayed, and processed in any sort order, without having to wait for SORT or SELECT commands.

B-TREE-P and a few minor modifications to your existing data entry programs are all that is necessary for you to immediately be able to search, display, and browse through your data quickly and conveniently. *Modifications to your existing data files are absolutely unnecessary!* B-trees do *not* use inverted files, cross-reference tables, or other similar inefficient indexing schemes.

Why not join the ranks of B-TREE-P users who can instantly locate and display their data any way they want, without having to wait for endless SORTs and SELECTs? To order, just send your name, address, telephone number, and your check for \$395 payable to Semaphore Corporation to the address on our letterhead. We'll send you complete B-TREE-P source code listings and all necessary documentation.

* This is not an endorsement by any of the companies listed.

B-TREE-P includes a license agreement with copy, use, and transfer restrictions, limiting your use of B-TREE-P to one computer at a time. Multi-CPU and OEM resale agreements are also available. Pick is a trademark of Pick Systems.